CORRES CONTROL
OUTGOING LTR NO.
DOE ORDER #

EG&G ROCKY FLATS

94RF 03053

EG&G ROCKY FLATS, INC.
ROCKY FLATS PLANT, P.O. BOX 464, GOLDEN, COLORADO 80402-0464 • (303) 966-7000

DIST.	LTR	ENC
AMARAL, M. E.		
BERMAN, H. S.		
BRANCH, D. B.		
CARNIVAL, G. J.		
COPP, R. D.		
DAVIS, J. G.		
FERRERA, D. W.		
HANNI, B. J.		
HARMAN, L. K.		
HEALY, T. J.		
HEDAHL, T.		
HILBIG, J. G.		
HUTCHINS, N. M.	✓	
KELL, R. E.		
KIRBY, W. A.		
KUESTER, A. W.		
MAHAFFEY, J. W.		
MANN, H. P.		
MARX, G. E.		
MCDONALD, M. M		
MEKENNA, F. G.		
MONTROSE, J. K.		
MORGAN, R. V.		
POTTER, G. L.		
PIZZUTO, V. M.		
RISING, T. L.		
SANDLIN, N. B.		
SETLOCK, G. H.		
STEWART, D. L.		
STIGER, S. G.		
SULLIVAN, M. T.		
SWANSON, E. R.		
WILKINSON, R. B.		
WILLIAMS, S. (ORC)		
WILSON, J. M.		
WYANT, R. B.		
G. M. ANDERSON	✓	
J. K. HOPKINS	✓	
J. McLAUGHLIN	✓	
CORRES CONTROL	X	X
ADMIN RECORD	✓	
PATS/T130G		
TRAFFIC		

CLASSIFICATION

UCNI		
UNCLASSIFIED		
CONFIDENTIAL		
SECRET		

AUTHORIZED CLASSIFIER SIGNATURE
DOCUMENT CLASSIFICATION
REVIEW WAIVERED PER
CLASSIFICATION OFFICE
DATE

IN REPLY TO RFP CC NO: N/A

ACTION ITEM STATUS
☐ PARTIAL/OPEN
☐ CLOSED

LTR APPROVALS:

ORIG & TYPIST INITIALS: MDK/SB

March 23, 1994

94-RF-03053

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William O. Heath
Senior Research Engineer
MSIN P7-41
Battelle, Pacific Northwest Laboratory
P. O. Box 999
Richland, Washington 99352

HIGH ENERGY CORONA OFF-GAS TREATMENT SYSTEM FOR EXTRACTED SOIL GAS - MDK-003-94

Dear Mr. Heath:

EG&G Rocky Flats, Inc., is in the process of evaluating treatment systems for extracted soil gas at Rocky Flats, in conjunction with in-situ soil remediation efforts at Rocky Flats. One of these remediation efforts involves the six-phase soil heating technology for thermally enhanced Soil Vapor Extraction (SVE). EG&G Rocky Flats, Inc., is currently assessing potential off-gas treatment technologies for the high moisture content, perchoroethylene and carbon tetrachloride laden air stream that is expected to be extracted from the subsurface soils. Technologies are being evaluated by several criteria including their applicability and effectiveness in treatment of the waste stream, their technical maturity (risk factor), and overall costs.

One of the technologies being considered for treatment of off-gas at the Rocky Flats facility is the High-Energy Corona process being developed at PNL. High-Energy Corona appears to meet all of the selection criteria except for technology maturity. The High-Energy Corona process was successfully tested with six phase soil heating in a pilot scale test at Hanford in preparation for the 1993 Savannah River demonstration. The pilot test was run for 48 hours during September of 1992. The work is described in an uncleared final report "Six Phase Soil Heating Pilot Scale Test".

High-Energy Corona has been shown to have low costs compared to other destruction technologies. A detailed cost analysis is described in PNL-9224, November 1993, "Initial Field Test of the High-Energy Corona Process for Treating a Contaminated Soil Off-Gas Stream". Authors of this report include Rahul Shah, Randy Garcia, Jud Virden, and Bill Heath.

Prior to any selection of this technology for EM-40 use, further development will be required to demonstrate its scale-up at a treatment rate of 100 to 300 standard cubic feet per minute (SCFM). The capacity of the SVE pilot unit at Rocky Flats is 300 SCFM, an order of magnitude beyond its High-Energy Corona technology present pilot-scale status. We believe the economic and technical merits of this technology warrant its further development, that it has the potential to meet our need, and our cost effectiveness requirements, and that its potential uses extend throughout the DOE complex.

A potential alternative for demonstration and performance evaluation of the High-Energy Corona technology would be to develop a field pilot test unit with a treatment capacity of 100 SCFM. This unit could be installed in parallel with the selected off-gas treatment technology for the SVE pilot unit at Rocky Flats. A portion of the extracted soil gas system could be diverted to the High-Energy Corona unit to evaluate scale-up performance but would not be relied upon for exclusive off-gas treatment for the SVE pilot unit.

ADMIN RECORD

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SW-A-003598

If the risk-factors associated with its present developmental status can be addressed in a timely fashion, the High-Energy Corona system will be strongly considered for use at EG&G Rocky Flats, Inc., as an integral part of our soil-treatment activities in Fiscal Year 1995.

Sincerely,

Michael D. Klein
Program Manager
Environmental Restoration Management
EG&G Rocky Flats, Inc.

MDK:cb

cc:
R. M. Bergsman - PNL
P. J. Laurin - EG&G Rocky Flats, Inc.
J. Roberts - PNL
M. B. Walter - PNL